

REMARKS

This paper is in response to the Office Action mailed September 27, 2004. By this paper, claims 2 and 7 are amended, claims 15 and 16 are cancelled without prejudice, and claims 17-20 are added. Accordingly, claims 1-14 and 17-20 are pending upon entry of this amendment.

Amendments to the Drawings

Applicants submit herewith the attached replacement sheets of drawings to replace Figures 2 and 10 of the application. The attached replacement Figure 2 adds previously omitted reference numerals 22 and 54. In replacement Figure 10, the lead line associated with reference numeral 34 has been amended to correctly point to the groove as described in the specification. Applicants submit that no new matter has been added by this amendment.

Response to Objection to the Specification

Figure 2 has been amended to include the reference numeral (54) inadvertently omitted from Figure 2 as pointed out by the Examiner in paragraph 1a.

In paragraphs 1b and 1c, the Examiner states that the reference numerals for the slack portion of the belt and the tension portion of the belt are incorrectly identified on page 5. However, upon close examination, Applicant asserts that these reference numerals are in fact correct. As stated in the specification and illustrated on Figure 2, the portion of belt 38 between drive pulley 54 and driven pulley 56 (on the right hand side of FIG. 2) is the slack portion of the belt. The portion of belt 76 between drive pulley 54 and driven pulley 56 (on the left hand side of FIG. 2) is the tension portion of the belt. Accordingly, no correction is required and Applicant requests that the Examiner withdraw this Objection.

Figure 10 has been amended so that the lead line associated with reference numeral (34) points to the groove in the figure as pointed out by the Examiner in paragraph 1a.

Response to Objection of Claim 7

Claim 7 has been amended to overcome the informalities identified by the Examiner. As correctly suggested by the Examiner, "blade" pulleys has be amended to the correct "idler" pulleys.

Response to Rejection of Claims 1-14

The claims are generally directed to a novel vibration damping mechanism for lawn tractors. The vibration damping mechanism is designed to absorb vibrations that are created by the cutting blades of the lawn tractor such as, for example, when the operator engages the cutting blades. During operation of the lawn tractor, when the operator engages the cutting blades, a great amount of energy is transferred to the belt in order to drive the blades. Without the use of the vibration damping mechanism, a substantial amount of energy is transferred from the belt to the mower deck and the engine, and subsequently to the rest of the mower causing the operator to feel the heavy vibration. Specifically, claim 1 is directed to a lawn tractor containing, *inter alia*:

a frame;
an engine supported by said frame;
a mower deck supported by said frame, said mower deck comprising at least first and second cutting blades;

first and second blade pulleys operatively connected to said first and second cutting blades, respectively, wherein rotation of said first and second blade pulleys causes corresponding rotation of said first and second cutting blades, respectively;

a drive system comprising a drive pulley rotatably connected to said engine and a belt operatively connecting said drive pulley to said first and second blade pulleys; and,

a vibration damping mechanism comprising a first idler pulley operatively connected to a slack portion of said belt and a second idler pulley operatively connected to a tension portion of said belt.

Claims 1-14 in the application stand rejected as being unpatentable over Liu et al. (U.S. Publication No. 2002/0039942) in view of Kuhn et al. (U.S. Patent No. 5,769,747). Applicant respectfully traverses the Examiner's rejection as the references of record, and particularly Liu et al. and Kuhn et al., do not show or suggest a vibration damping mechanism comprising a first idler pulley operatively connected to a slack portion of the belt and a second idler pulley operatively connected to a tension portion of the belt as required by claim 1.

While Applicant is mindful that claim terms normally are interpreted using their ordinary meanings, Applicant's specification has clearly defined the terms "slack portion" and "tension portion" of the drive belt as used in claims 1 and 9. In the paragraph beginning on page 4, line 19 of the Specification, Applicant states:

It is known in the art of belt drive systems to have a "slack" side or portion of the belt and a "tension" side or portion. Throughout this patent, the term "slack portion" refers to the portion of the belt between the drive [crankshaft] pulley and the nearest driven pulley where the belt moves from the drive pulley to the driven pulley. The term "tension portion" refers to the portion of the belt between the drive [crankshaft] pulley and the nearest driven pulley where the belt moves from the driven pulley to the drive pulley. Any belt portion between two driven pulleys is not considered to be a slack portion or a tension portion.

Accordingly, Applicant requests the Examiner to pay special attention to this clear meaning of "slack portion" and "tension portion" as used in the claims.

Liu et al. disclose a belt drive system 10 and method for operating the drive system. Specifically, the belt system 10 has a crankshaft pulley 24, three accessory pulleys 18, 20 and 22, and a motor/generator pulley 14. A power transmission belt 30 is trained about the crankshaft pulley, the accessory pulleys, and the motor/generator pulley. The belt system 10 also has a first belt tensioner 26 and belt tensioner pulley 28 and a second belt tensioner 27 and belt tensioner pulley 29 around which the belt 30 is also trained. The system has the first tensioner pulley 28 positioned between the crankshaft pulley 24 and the motor generator pulley 14. The second tensioner pulley 29 is positioned between the accessory pulley 18 and the motor generator pulley 14.

Thus, Liu et al. fail entirely to teach or suggest a vibration damping mechanism having a first idler pulley in the "slack portion" of the belt between the drive pulley connected to the engine (i.e., the "crankshaft pulley") and the first "accessory" pulley and a second idler pulley in the "tension portion" of the belt between the second "accessory" pulley and the drive pulley. In fact, the Liu et al. reference teaches away from the current invention in that both of the idler

pulleys are placed in a downstream direction (i.e., direction of belt travel as indicated by the reference arrow in Figure 1) of belt travel from the crankshaft pulley 24. Clearly, Liu et al. fail to teach or suggest the important second tensioner pulley positioned between the accessory pulley and the drive pulley as required by claim 1.

Kuhn et al. teach a belt tensioning mechanism for a lawn tractor. However, Kuhn et al. only teaches a single idler pulley located in the slack portion of the belt. Kuhn is entirely void of any suggestion of using a second idler pulleys and placing the second idler pulleys in the tension portion of the belt so as to reduce vibrations. Applicants note that the incorporation of the second idler pulley would not be mere duplication of working parts of a device requiring routine skill in the art because, in this instance, it is the combination of the two idler pulleys blades, and the location of the two idler pulleys that Applicants have found to provide surprisingly effective vibration reduction. Accordingly, Kuhn et al. cannot cure the deficiencies of Liu et al.

Accordingly, claim 1 is patentable over the cited art and prompt allowance of the claim is respectfully requested. Independent claim 9 contains similar limitations to those described above and is therefore likewise patentable over the cited art. Claims 2-8 and 10-14, depending directly or indirectly from one of claims 1 or 9 are submitted as patentable over the cited references for at least the same reasons.

New Claims

Additionally, new claims 17-21 have been added directed toward features of the invention and Applicant believes these new claims contain patentable subject matter. Prompt allowance of these new claims is respectfully requested.

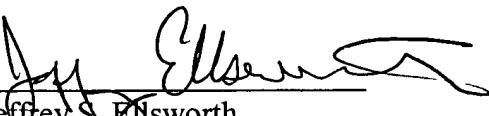
Conclusion

In view of the amendments and remarks made herein, Applicant submits that the claims presented herein are patentably distinguishable from the art applied and prompt allowance of the application is respectfully requested.

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Should the Examiner determine that anything else is desirable to place this application in even better form for allowance, the Examiner is respectfully requested to contact the undersigned by telephone.

Respectfully Submitted,
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AMENDMENTS TO THE DRAWINGS

The attached sheets of replacement drawings replace Figures 2 and 10 of the application. The attached replacement Figure 2 adds previously omitted reference numerals 22 and 54. In replacement Figure 10, the lead line associated with reference numeral 34 has been amended to correctly point to the groove as described in the specification.